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ABSTRACT

In studies examining the impact of performance information on motivation, both feedback and goal setting have been found to improve performance. To explore the generalizability of E. A. Locke's (1968) theory of task motivation to groups, 180 male masters of business administration (MBA) students were randomly organized into 60 three-person groups. Each group solved four simple reasoning problems during four consecutive rounds, in which the motivational effects of three levels of feedback (group performance compared with a standard, no standard, and no feedback), and two levels of goal setting (explicit, and no goal setting) were manipulated. An analysis of the results showed that explicit goal setting improved group performance with or without feedback. Neither type of feedback alone helped performance, but both types negatively affected either goal selection or satisfaction with performance. Groups receiving the comparison standard set a goal of trying to beat the average team rather than the best team, and since the average was beat in the first round, the standard did not serve to challenge the groups. Groups in the feedback only/no goal setting condition reported the least satisfaction with group performance. The findings strengthen the conclusion that goal setting rather than feedback energizes performance. (BL)

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MOTIVATIONAL EFFECTS OF FEEDBACK AND GOAL-SETTING ON GROUP PERFORMANCE

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ABSTRACT

This study explores the generalizability of Locke's (1968) theory of task motivation to groups. Sixty 3-person groups of MBA students solved 4 simple reasoning problems receiving feedback or not and explicitly setting performance goals or not. Two types of feedback (with or without a comparison standard) were examined for their potential to stimulate improved group performance. Explicit goal-setting improved group performance with or without feedback. Neither type of feedback alone helped groups, but both types affected either goal selection or satisfaction with performance negatively. Critical group processes associated with goal-setting and performance improvements are identified and discussed.

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MOTIVATIONAL EFFECTS OF FEEDBACK AND GOAL-SETTING ON GROUP PERFORMANCE

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The positive impact of performance information on human learning and motivation is one of the better documented findings in the psychological literature. Known as "knowledge of results (KR)" to learning theorists, performance information is now more commonly referred to as "feedback" reflecting current emphases on systems and information processing models of human behavior. With the shift toward cognitive theories in psychology, motivational explanations of the effects of performance information have begun to emphasize the role of goals (e.g., Locke,1968).

One of the first attempts to build a motivational theory which could explain the results attributed to feedback by experimental psychologists, but from a cognitive perspective, was Locke's theory of task-motivation (1968). Locke's early work demonstrated that feedback produced motivational effects only when it was successful in inducing goal-setting (e.g., Locke, Cartledge, & Koeppel, 1968). Feedback was essentially stripped of motivational properties by these researchers although Locke has recently gone on record as believing that both feedback and goal-setting are necessary for performance improvements (Locke, Shaw, Saari, & Latham, 1981). Yet no published study to date has contained all the necessary control conditions to adequately test this assumption.

We know very little about the impact of feedback and goal-setting on the task motivation of groups since groups have rarely been the specific focus of studies related to these variables. In a recent review, Nadler (1979) suggests that feedback can produce motivational effects in groups, but whether or not

it does may depend upon, among other things, the existence of an explicit strategy such as goal-setting for using the performance information. Zander's (1971) model of group motivation demonstrates that groups can and do set goals and that these goals affect group motivation in the same way that an individual's goals affect his or her motivation.

The study reported here represents a first step toward sorting out how feedback and goal-setting affect a group's task motivation. The author sought to determine whether Locke's model of task motivation could be generalized to groups and whether explicit goal-setting might serve as a key strategy for effective use of performance information by groups. In addition, this study provides one of the first examinations of the separate and combined effects of feedback and goal-setting on task motivation with all required control conditions in one study[1].

METHOD

Design

A 2 x 3 factorial design was used to test for motivational effects of feedback and goal-setting. There were 2 levels of goals (explicit goal-setting and no goal-setting[2]) and 3 levels of feedback (feedback about the group's own performance with a comparison standard, feedback without a comparison standard, and no feedback). Two types of feedback were evaluated for their ability to induce spontaneous group goal-setting because the author

[1]Following Locke's example, this study focused specifically on the energizing aspect of feedback and goal-setting by using simple tasks in which only trying harder could enhance performance.

[2]Since all participants were encouraged to do their best, even if only implicitly by experimental demand characteristics, the No Goal-Setting condition is probably analogous to Locke's "Do Best" goal condition.

questioned whether member's private individual goals could help a group's performance.

Groups in goal-setting conditions were instructed to set performance goals, by reaching a unanimous decision through discussion about what score the group would try to achieve on the next round. These goals were recorded by the experimenter.

Feedback consisted of reporting the team's performance score, adjusted for errors, following each round. A 90-second penalty was added to a person's score for incorrect solutions. This was found to be necessary in order to encourage participants to work out the correct solutions. In 2 of the 4 feedback conditions a bogus comparison standard was added to the group performance scores. This standard supposedly reported the overall average, best, and worst scores achieved by similar groups in a previous study using the same tasks. Our intent was to challenge participants to try to beat the best score while reassuring them that they were doing at least as well as the average team in the previous study. To achieve this, the standard scores were pegged to a group's performance in Round 1, a practice round, so that groups always thought they were doing 5% better that the average and 35% worse than the best teams.

Subjects

The subjects were 180 male MBA students, strangers to one another, who took part in the study voluntarily. They were randomly formed into 60 3-person groups. Since it was not possible to guarantee a balanced participation by female subjects across conditions, only male subjects were used.

Task and Procedure

The tasks used in this study consisted of 4 simple reasoning problems which each had one correct solution. Each group solved each problem separately during 4 consecutive problem-solving rounds. The information needed to solve a problem had been split up into single factual statements with each statement typed on a 3 x 5 card. During a given round, the group would receive the cards for one problem, but they would be distributed randomly to the 3 members. Thus, each person had only part of the necessary information and they were instructed to share their information verbally so that each could solve the problem. They were allowed to work together on the problem and groups virtually always did so. While each participant submitted an answer to each problem, the performance score was a group measure based on the average time it took each member to reach a solution. Both task selection and group instructions were designed to ensure that the only way in which a group could improve its performance was by working faster.

The dependent variables reported on here include average group performance scores as reported to teams in the feedback conditions and responses to post-experimental questions about group process and staisfaction.

RESULTS

The group performance data were analyzed by an analysis of covariance with repeated measures using Trial 1 scores as the covariate[3]. The mean group performance scores are presented in Table 1 for groups in each of the 6 conditions. The analysis revealed a main effect for goal-setting ($F_{(1,53)} = 4.19$, $p < .05$) but no main effect for feedback ($F_{(2,53)} = 0.20$, n.s.).

[3]Differences across conditions in ability to perform the task made an analysis of covariance necessary.

Goal-setting teams performed better overall than non-goal-setting teams although planned comparisons indicated that this difference did not occur between teams receiving the comparison standard as part of their initial feedback.

Analyses were performed on raw performance scores (unadjusted for errors) and on accuracy scores as well. Raw performance scores produced identical, slightly stronger results. The accuracy analysis produced a striking reversal in that teams in the Feedback Only/Goal-Setting condition submitted more incorrect solutions than any other teams in the study whereas their speed scores were generally the best in the study. Since these teams also reported the least satisfaction with group performance, it seems unlikely that they were engaging in a strategy of maximizing speed at the expense of accuracy. Rather, they seem to have experienced arousal to such an extent that it interfered with their accuracy. Lacking a realistic comparison standard, members of these teams did not recognize their superiority in speed.

Analyses of responses to the post-experimental questionnaire revealed 3 specific group processes which were related to the high performance of the goal-setting teams. Table 2 shows that goal-setting groups reported, (1) talking more about group performance than non-goal-setting teams ($M=5.41$ vs 4.39, $p<.001$), (2) having a clearer idea of how the group was doing than non-goal-setting teams ($M=4.91$ vs 4.15, $p<.001$), and (3) having the goal of beating their previous score moreso than non-goal-setting teams ($M=5.79$ vs 4.62, $p<.001$). As with the performance data, however, goal-setting did not differentiate groups which received the comparison standard with feedback. Thus, it appears that inclusion of a standard may spontaneously induce those group processes related to high performance. The unanticipated effect of the

comparison standard in this study makes it impossible to assess the true beneficial effects of a standard. Responses to the post-experimental questionnaire indicated that, contrary to the author's wishes, groups receiving the standard set a goal of trying to beat the average team rather than the best team in the previous study. Since they had achieved this goal by the end of Round 1, the standard did not serve to challenge them as had been anticipated.

DISCUSSION

This study demonstrates once again the importance of goal-setting to task motivation. As in Locke's studies of individuals, explicit goal-setting, not feedback, emerged as the determinant of task motivation in groups. In fact, feedback had even less of a positive effect in this study of groups than it has had in Locke's studies since both feedback manipulations used in this study have been shown to improve the performance of individuals. Questionnaire responses indicated that inclusion of a standard stimulated explicit goal-setting, but it is unclear from this study whether a standard would be an adequate substitute for explicit goal-setting procedures. The fact that groups which setgoals explicitly but received no feedback performed very well and felt good about their performance strengthens the conclusion that goal-setting rather then feedback energizes greater effort. Working harder will not improve performance in all situations, however. We now need to explore the role of feedback, especially process feedback, in helping groups to work smarter.

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Table 1

Mean Group Performance in Seconds
Summed Across Trials 2 - 4[a]

(Adjusted for errors and Trial 1 performance)

	Explicit Goals	No Explicit Goals
Feedback With Standard	874.77	897.09
Feedback Without Standard	826.46	994.67
No Feedback	822.96	924.35

Analysis of Covariance with Repeated Measures

(Covariate = Performance on Trial 1)

Source	df	Mean Square	F	p
Feedback	2	2,262.69	0.20	n.s
Goal-Setting	1	46,821.06	4.19	0.046
Interaction	2	8,777.22	0.79	n.s
Covariate	1	113,907.00	10.19	0.002
Round	2	17,781.09	2.27	n.s.
Round x Feedback	4	11,880.42	1.52	n.s.
Round x Goal-Set	2	1,938.69	0.25	n.s.
R x F X G-S	4	11,773.97	1.50	n.s.

[a]Lower scores reflect better performance (faster times)

TABLE 2

Mean Responses to Questionnaire Items Concerning Group Process[1]

Item	With Explicit Goals	Without Explicit Goals	F
"We talked about our team's performance"	5.41	4.39	13.20**
"I had a clear idea of how well the team was performing"	4.90	4.15	8.02*
"We were trying to beat our own previous goal"	5.79	4.62	14.81**

* $p<.01$

** $p<.001$

[1]Scale: 1 = Strongly disagree, Never or almost never, or Not at all

to

7 = Strongly agree, Very often or Very much so